RELATIONSHIP OF THE PHASE AND AMPLITUDE PARAMETERS WITH ANISOTROPY OF MULLER-MATRIX INVARIANTS

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The principles of optical model of human blood plasma polycrystalline structure are described. The results of investigating the interrelation between the values of statistical, correlation and fractal parameters are presented. They characterize the coordinate distributions of mutual polarization degree of the points of laser images of blood plasma smears of patients with malignancy of the breast in combination with other pathologies. The diagnostic criteria of the malignancy of the breast and its severity degree differentiation are determined [1-3].

Laser images of three groups of blood plasma samples of the patients of different pathological state are analyzed:
- healthy patients – group 1 (11 patients);
- patients with benign breast changes – group 2 (10 patients);
- patients with malignancy of the breast – group 3 (12 patients).

The ensemble of data about the values of diagnostic parameters $M_{k=1;2;3;4}(V=0,5)$ is presented in Table 1.

Table 1. Statistical moments of the 1st-4th orders of distributions $V(x,y)=0,5$ of blood plasma layers of all groups of patients

Parameters	Group 1	Group 2	Group 3
$M_1(V=0,5)$	$0,09\pm0,008$	$0,21\pm0,027$	$0,32\pm0,019$
$M_2(W=0,5)$	$0,26\pm0,031$	$0,13\pm0,023$	$0,12\pm0,019$
$M_3(W=0,5)$	$0,11\pm0,021$	$1,28\pm0,41$	$4,26\pm0,58$
$M_4(W=0,5)$	$0,09\pm0,009$	$2,12\pm0,52$	$5,29\pm0,0096$

The difference between statistical moments $M_k(W)$ of laser images of test group blood plasma (group 1) and the patients with various pathologies (groups 2 and 3) – mean (increasing by $2.7 - 3.5$ times); dispersion (decreasing by $2.5 - 3.3$ times); skewness (increasing by $3.3 - 5.4$ times) and kurtosis (increasing by $4.5 - 6.1$ times) – are determined [3].

Thus, diagnostic effectiveness of the phase and amplitude parameters with anisotropy of Muller-matrix invariants of myocardium tissue histological sections was demonstrated for diagnosing different types of pathologies.

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